

Technical Report Documentation Page

1. Report No. FHWA/NC/2001-001	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Overcoming Obstacles to the Use of Traffic Signal Detector Data for Traffic Forecasting		5. Report Date September 2001	
		6. Performing Organization Code	
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9. Performing Organization Name and Address Institute for Transportation Research and Education North Carolina State University Centennial Campus Box 8601 Raleigh, NC 27606		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address North Carolina Department of Transportation Research and Analysis Group 1 South Wilmington Street Raleigh, NC 27601		13. Type of Report and Period Covered Final Report July 1999 – June 2001	
		14. Sponsoring Agency Code 2000-02	
Supplementary Notes:			
<p>16. Abstract</p> <p>North Carolina Department of Transportation (NCDOT) traffic engineers use inductive loop traffic detectors in order to provide efficient signal timing at signalized intersections that do not assign right-of-way under a fixed time division framework. As vehicles travel over the electrified loops, amplifiers in the signal cabinet detect changes in vehicle inductance. The controller uses this traffic demand information transmitted from the amplifiers to modify signal timing on a cycle-by-cycle basis. NCDOT and ITRE have conducted a limited study into the use of advanced detector amplifiers for traffic counting purposes. With the cooperation of Reno A&E, a signal electronics vendor, NCDOT and ITRE tested standard and advanced detector amplifiers in a variety of settings in Wake County.</p> <p>This report provides a brief primer on traffic operations engineering, followed by background information regarding the controllers and detectors that are used to implement traffic operations in the field. A brief literature review is then followed by a summary of the user's workshop help in 1999. The report then offers a detailed summary of the field experiments conducted in 1999, 2000, and 2001. The paper then provides specific recommendations for implementation for both NEMA TS-1 and TS-2 cabinets.</p> <p>Our overall recommendation is to begin using "stretch" (far) loops for traffic counts by rewiring cabinets and installing detector amplifiers with secondary count outputs on an as-needed basis. We do not recommend the use of quadrupoles for counts at this time. Given that we observed essentially no variation between rhombus, diamond, and square shaped loops during our 2001 field investigation, we recommend that North Carolina retain the use of rectangular (square) 6' x 6' shaped loops.</p>			
17. Key Words Traffic Signal, Loop Detector, Traffic Counts		18. Distribution Statement	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 200	22. Price